Mapping Kabul's private urban green spaces using geographic information system supervised classification

ABSTRACT

Private green spaces are considered an important part of urban greenery. However, the extent of private green spaces in an informal city like Kabul is unknown. To this end, this study has mapped out the private green spaces in the informal settlements of Kabul city. A Geographic Information System (GIS)-supervised image classification technique was used to identify these private green spaces in three of the 22 police districts (PDs) in the city. Briefly, the classification consisted of defining training samples, extraction of signature and classification of the imagery. As a result, 330.3 hectares were identified as private green spaces, which made up 12.3 % of the total area of informal settlements in these three districts. With 217.1 hectares, PD7 had the largest area of private green spaces among the three police districts, contributing to 65.7 % of the overall area of private green spaces, followed by PD8 (21.3 %) and PD16 (13 %). In future, the map generated in this study could be used to monitor, manage and conserve the existing urban greenery in the face of private green spaces. The results could also be utilised by the Kabul Municipality and other relevant departments to implement an upgrading programme in the informal settlements of Kabul city, which would lead to fulfilling the environmental needs of the residents.

Keyword: Informal settlements; Pixel-based analysis; Private gardens; Urban domestic gardens; Vegetation mapping